

CLAIMS

1. A lead battery that becomes usable by injecting an electrolyte thereinto, said lead battery comprising:

positive electrode plates each including a positive electrode grid comprising a Pb-Ca based alloy, and a positive electrode active material retained by said positive electrode grid;

negative electrode plates each including a negative electrode grid comprising a Pb-Ca based alloy, and a negative electrode active material retained by said negative electrode grid;

separators that separate said positive electrode plates from said negative electrode plates;

the electrolyte comprising sulfuric acid; and a battery container accommodating said positive and negative electrode plates, said separators, and said electrolyte,

wherein said battery container is sealed, part of said positive and negative electrode plates is immersed in the electrolyte, and the height Y_0 of said positive and negative electrode plates and the distance Y_1 from the bottom of said positive and negative electrode plates to the level of said electrolyte satisfy the relation:

$$15 \leq Y_1/Y_0 \times 100 \leq 60.$$

2. The lead battery in accordance with claim 1, wherein the height Y_0 of said positive and negative electrode plates and the distance Y_1 from the bottom of said positive and negative electrode plates to the level of said electrolyte satisfy the relation:

$$30 \leq Y_1/Y_0 \times 100 \leq 50.$$

3. The lead battery in accordance with claim 1, wherein the concentration of said sulfuric acid is 7 to 27 % by weight.

4. The lead battery in accordance with claim 1, wherein said electrolyte contains a sulfate of alkali metal or alkaline earth metal.

5. The lead battery in accordance with claim 1, wherein said separators comprise polyethylene.

6. The lead battery in accordance with claim 5, wherein said separators contain oil.

7. The lead battery in accordance with claim 6, wherein each of said separators contains 10 to 30 % by weight of said oil.

8. The lead battery in accordance with claim 5, wherein said separators are shaped like a bag and accommodate said negative electrode plates.

9. The lead battery in accordance with claim 1, wherein said positive electrode grid has a lead alloy layer at least at a part of the surface thereof, said lead alloy layer containing at least one of Sb and Sn.

10. The lead battery in accordance with claim 1, wherein the gas inside said battery container is replaced with an inert gas.

11. A lead battery storage method for storing a lead battery comprising: unformed positive and negative electrode plates each having a grid comprising a Pb-Ca based alloy; separators that separate said positive electrode plates from said negative electrode plates; an electrolyte comprising sulfuric acid; and a battery container accommodating said positive and negative electrode plates, said separators, and said electrolyte,

said method comprising storing said lead battery, after forming said lead battery and then decreasing the amount of the electrolyte,

wherein the amount of the electrolyte is adjusted such that the height Y_0 of said positive and negative electrode plates and the distance Y_1 from the bottom of said positive and negative electrode plates to the level of said electrolyte satisfy the relation:

$15 \leq Y_1/Y_0 \times 100 \leq 60$, and the battery container is sealed while said lead battery is stored.